

steamers resume trips 26th; Neilsville, Wis., a good stage of water in Black river, and logs running out, on the 9th; Detroit, Mich., first boat left on the 4th, and the first boat for Lake Huron on the 8th; Rochester, N. Y., first vessel out on the 4th; Northport, Mich., first schooner arrived 13th, first steamer arrived 24th; Moorhead, Minn., first steamer arrived 21th, 1 ft on the 24th; Plattsmouth, Neb., first steamer went up the river 8th; Toledo, Ohio, first steamer from Canada on the 4th; Escanaba, Mich., steamers crossed channel through the ice 27th; St. Paul, Minn., navigation opened 22d; Bangor, Me., navigation opened 12th; Chicago, Ill., opened 28th; Bismarck, D. T., first boat up river 24th; Erie, Penn., first departure 12th, arrival 14; Cleveland, Ohio, first arrival 4th; Port Huron, Mich., first boat passed up 9th; Alpena, Mich., first steamer arrived 9th; Pembina, Minn., first boat arrived 26th.

WATER TEMPERATURES.

The maximum and minimum temperatures, as observed at the bottom of waters in rivers and harbors, are given in the table on Chart No. II. Minima of 32° or 33° are recorded at Alpena, Buffalo, Detroit, Duluth, Eastport, Milwaukee, Pittsburgh and St. Paul. Maxima are reported from Key West, 83°; Augusta, 73°; Galveston, 79°; Montgomery, 70°; St. Marks, 73°; Shreveport, 75°. Ranges of 20° or more are reported from Grand Haven, Keokuk, St. Paul and Toledo, 20°; Augusta and St. Louis, 21°; Leavenworth, 22; Omaha, 23°; Yankton, 27. At Golden City, Col., the temperature of Clear Creek was 52°, and of well-water, 43°, on the 30th.

ATMOSPHERIC ELECTRICITY.

Thunder and Lightning have been observed in the following States on the given dates: 1st, Ala., Ga., La., Miss., Tenn., Texas; 2d, Ala., Fla., Ill., Ind., Ky., Ohio; 3d, Ala., Ga., Fla., Ind., S. C.; 4th, Ind., La., Mo.; 5th, Ill., Ohio, Penn., Texas; 6th, N. M., Texas; 7th, Ala., Conn., La., Miss., N. Y., R. I., Texas; 8th, Dak.; 9th, Dak., Iowa, Kan., Mo., Neb., Wis.; 10th, Dak., Ill., Iowa, Kan., Neb., Penn., Texas; 11th, Ill., Ind., Iowa, Kan., Ky., La., Miss., Mich., Mo., Neb., Ohio, Tenn., Texas, Va., Wis.; 12th, Ga., Ill., Ind., Iowa, Kan., Ky., La., Mich., Miss., Mo., N. J., Penn., Tenn., Texas, Wis.; 13th, Ill., Ind., Iowa, Ky., La., Miss., Md., Mich., N. J., N. Y., N. C., Ohio, Penn., S. C., Tenn., Texas, Wis., West Va.; 14th, Ala., Ga., N. J., N. Y., N. C., Ohio, Penn., Va., Wis.; 15th, Ill., Ind., Ohio; 16th, Conn., Mass., Ohio, Penn., Tenn., West Va.; 17th, Va.; 18th, Iowa, N. C.; 19th, Iowa, Kan., Minn., Neb.; 20th, Ill., Ind., Kan., Ky., Mich., Mo., N. J., N. Y., Ohio, Penn., Wis., West Va.; 21st, Ga., Ill., Iowa, Kan., Ky., Mo., Neb., N. J., N. Y., N. C., Penn., Tenn.; 22d, Dak., Kan., Mich., Mo., Neb., Tenn., Utah; 23d, Ind., Kan., Ky., Mass., Mo., Neb., N. C., Ohio, Tenn.; 24th, Ala., Ark., Fla., Ga., La., Miss., N. C., S. C., Tenn.; 25th, Dak., Fla., Ind., Iowa, Kan., La., Minn., Neb., N. C., Texas, Va.; 26th, Dak., Ill., Iowa, Kan., La., Mo., Neb., Texas; 27th, Ark., Ill., Ind., Iowa, Kan., Mich., Minn., Mo., Ohio, Tenn., Wis.; 28th, Ala., Del., Ga., La., N. J., N. C., Penn., S. C., Tenn., Texas, Va.; 29th, Ill., Ind., Kan., Mo., N. Y., Ohio, Utah; 30th, Ala., Ill., Kan., Minn., Neb., Tenn.

Auroras have been feeble, except that of the 19th. They have been reported as follows: 6th, Guttenberg, Iowa; 12th, Havana, Ill.; 14th, Malone, N. Y.; 16th, Waltham, Mass.; 17th, Decatur, Ill.; 18th, Escanaba, Alpena and Marquette, Mich.; 19th, Buffalo, N. Y., Springfield, Mass., Malone, N. Y., Boston, Mass., Cornish, Eastport, West Waterville, Gardiner, Standish, Orono and Acton, Me., Hinsdale and Florida, Mass., Shelburne and Contoocookville, N. H., Ardenia, Waterburgh, North Argyle, Wappinger's Falls and Canton, N. Y., Woodstock, West Charlotte and Lumburg, Vt.; 22d, Escanaba, Mich., and Indianapolis, Ind.; 23d, Escanaba, Mich., and Woodstock, Vt.; 24th, Breckenridge, Minn., and Malone, N. Y.; 27th, Malone, N. Y.

Telegraphic Ground Currents.—Electrical disturbances reported on telegraph lines at Milwaukee 11th and 20th; at Santa Fe, N. M., 5th; at Philadelphia, 28th; and at Pike's Peak, 24th.

OPTICAL PHENOMENA.

Mirage was observed at Evanston, Ill., on the following dates: 8th, 9th, 21st, 22d and 24th; New London, 2d, 8th, 11th, 13th, 22d and 27th; Breckenridge, 6th, 10th, 17th, 19th and 30th; Fort Ontario, N. Y., 16th, 26th; Atlanta, Kan., 3d, 9th, 12th, 13th, 17th, 18th, 19th, 22d, 24th, 25th, 26th, 27th; Ellenwood, Kan., 7th; Moorhead, Minn., 1st.

Solar Halos.—1st, Ill., Ind., Ky., Ohio, Va., W. Va., Wis., Ga.; 2d, Md., N. C., Ohio, N. Y., Kan., Penn., Me.; 3d, Me., Neb., Ohio, Wis.; 4th, Ill., Iowa, Minn., Ohio, Wis., N. Y.; 5th, Kan., N. J., N. Y., Vt., Ill., Wis., Col.; 6th, Mich., Ws., Ga., Ill., Minn., Dak.; 7th, Conn., Me., Mass., N. H., N. Y., Ohio, Tenn., Vt., Ga., Va.; 8th, Me., Tenn.; 9th, Ill., Ind., Mich., Ohio, Tenn., Wis., Kan., Fla.; 10th, Md., Mich., Neb., N. Y., Ohio, Penn.; 11th, Conn., Mass., Mich., N. C., N. H., N. J., N. Y., Penn.; 12th, Conn., Me., Mass., Mich., N. Y.; 13th, Me., N. H., N. Y., Ohio, Vt., Ga., Minn., Neb.; 14th, N. H., N. Y., Ga.; 15th, Iowa, Neb., Tenn.; 16th, Mich., Me., N. H., N. Y., Tenn.; 17th, Neb.; 18th, Dak.; 19th, Ill., Ohio, Tenn., Mich., 20th, Del., Ill., Me., Neb., Ohio, Penn., Tenn., Va., N. C.; 21st, Conn., Del., Ill., Ind., Ky., Mass., Minn., Mich., N. Y., Neb., N. J., Ohio, Tenn., Wis., 22d, Ill., Me., Mich., N. C., N. Y., N. J., Ohio, Kan., Conn.; 23d, Md., Penn., N. Y., N. J.; 24th, Mass., Me., N. H., N. Y.; 25th, Conn., Ill., Iowa, Me., N. Y., Vt., Wis.;

26th, Me., N. H., N. Y., Ohio, Vt.; 27th, Me., N. H., N. Y., Vt., Wis.: 28th, Me., Ohio; 29th, Iowa, N. Y., Tenn., Ill.; 30th, Iowa, Va.

Lunar Halos.—1st, Iowa, Mass., Minn., N. J., N. C., Ohio, Va., W. Va., Wis., R. I., Ky., Fla.; 2d, Neb., Penn., Conn., Va.; 3d, Neb., Ala., Minn., Col., Kan.; 4th, Ill., Mich., Minn., Ohio, N. C., Cal., N. Y., N. M.; 5th, Col., Iowa, Ky., N. Y., N. C., Ohio, Ill., Wis.; 6th, Ark., Mich., Dak., Wis., Ill., N. Y., Penn., Ohio, Kan., R. I., Minn., Fla., N. M.; 7th, N. Y., Tenn., Utah, Va., N. C., Penn., Mich., Ky., S. C., Ga.; 8th, Cal., Ind., Me., Tenn., Neb.; 9th, Mich., Ohio, Tenn., N. C., Dak.; 10th, Tenn., N. C., Ala., N. J., Penn., N. Y., Dak.; 11th, N. Y., N. C., N. J.; 13th, N. C.; 15th, Kan.; 16th, N. Y., Kan.; 26th, Utah, Wis.; 27th, Penn., Ga., S. C., Ky., Kan., N. C.; 28th, N. J., Tenn., Kan., Col., N. M., N. C.; 29th, Ill., Cal., Ga., Col., Minn., La., Texas, Kan., N. C.; 30th, Ind., Va., Minn., Ala., Ga., Dak., Wis., La., Ky., N. C.

MISCELLANEOUS PHENOMENA.

Climate of the cotton belt.—In the cotton interests, the following information is furnished: Chart No. II shows that the cotton-belt is mostly included between the monthly isotherms for April of 70° and 60°, and the table on the same chart shows that these temperatures vary less than one degree from the mean for a long series of years, being slightly above the mean in the Gulf States, and slightly below in the South Atlantic States.

Chart No. III shows that the monthly rain-fall for the cotton-belt has been largely above the mean, particularly in Alabama. A very large portion of this rain fell during the first three days of the month, leaving the latter part of the month very dry; in consequence the crops must have suffered, before the close of the month, in many localities. But abundant rains fell in all of the cotton States, except southern Texas, during the second week of May. The number of days on which rain fell during April, in the cotton district, varied from 2 at Indianola to 10 at Shreveport, Vicksburg and Mobile, and the mean relative humidity in the same section ranges between 54 per cent. at Memphis and Nashville to 77 at Galveston.

Po'ar Bands were observed at Milwaukee on the 18th; Freehold, N. J., 2d and 13th; Carthagena, Ohio, 1st, 6th, 7th, and 21st.

Zoological Phenomena.—*Birds.*—*Blue birds* seen at Madison Barracks, N. Y., 6th; Afton, Iowa, 3d; Cornish, Me., 13th; Salem, W. Va., 2d; Embarrass, Wis., 7th; Newport, R. I., 12th. *Black birds* seen at Estes Park, Col., 16th; Independence, Iowa, 7th; Muscatine, Iowa, 6th; Nora Springs, Ia., 9th; North Port, Mich., 12th; Auburn, N. H., 8th; Palermo, N. Y., 1st; Flushing, N. Y., 2d; West Charlotte, Vt., 7th; Woodstock, Vt., 27th. *Cat birds* seen at Oregon, Mo., 23; Plattsburgh, Neb., 26th; Urbana, Ohio, 29th; Bethel, Ohio, 29th; Jacksonburg, Ohio, 11th; Clarksville, Tenn., 24th. *Ducks* seen at Morgantown, W. Va., flying east, on the 1st and west on the 2d; Milwaukee, Wis., flying north on the 1st; Pembina, D. T., north, 10th and 12th; St. Paul, Minn., north, 9th. *Geese* seen at Madison Barracks, N. Y., 11th; Mt. Sterling, Ill., 16th, moving north; Harton, Kan., 1st and 3d, north; Cornish, Me., 6th, north; North Port, Mich., 19th, north; Brookhaven, Miss., 23d, north; Emmerson, Neb., 3d, north; Palermo, N. Y., 2d and 12th, north; Morgantown, W. Va., 4th, north; Milwaukee, Wis., 1st, north; Cairo, Ill., 20th, north; Davenport, Iowa, 5th, north; Breckenridge, Minn., 21st and 28th, north; St. Paul, Minn., 8th, north; Atlantic City, N. J., 5th, 7th, 11th, 12th and 14th, north; Newport, R. I., 24th, southeast; Pembina, D. T., 8th, 10th and 12th, north; Portland, Or., south, 2nd and 19th. *Kildeer, Plover and Snipe* seen at Louisville, Ill., 20th. *Martins* seen at Decatur, Ill., 21; Afton, Iowa, 3; Independence, Iowa, 10; Monticello, Iowa, 4; Holton, Ks., 5; Burlingame, Ks., 3; Bentleville, Ky., 6; Corning, Mo., 3; North Hammond, N. Y., 19; Weldon, N. C., 3; Urbana, Ohio, 7; Bellefontaine, Ohio, 10; Kenton, Ohio, 6; Bethel, Ohio, 10; Jacksonsburg, Ohio, 6; Ringgold, Ohio, 16; Westchester, Pa., 11; Clarksville, Tenn., 2; Clarksville, Texas, 2; Newport, Vt., 22; Bloomfield, Wis., 11; Embarrass, Wis., 26; Utica, Wis., 9; Morgantown, W. Virg., 13; Grand Haven, 21; Malone, 21. *Meadow Larks*: Estes Park, Col., 16; Golden City, Col., 2d, nesting; Sommerset, Mass., 2; Contoocookville, N. H., 16; Bismarck, 10. *Mocking-birds* first seen at Ft. Madison, Ia., 13. *Pipecans*: Cai oon th., 21, moving N. *Pigeons*: Morgantown, W. Virg., 3 and 4, moving W. *Prairie Chickens* seen at Independence, Iowa., 4 and at Monticello, Ia., 5. *Prairie Owls*: Golden City, Col., 29th. *Robins* seen at Fort Ontario, N. Y., 2nd; Madison Barracks, N. Y., 6th; Estes Park, Col., 9th; West Waterville, Me., 10th; Standish, Me., 2nd; Mt. Desert, Me., 8th; Florida, Mass., 12th; Lunenburg, Vt., 12th; West Charlotte, Vt., 1st; Strafford, Vt., 3rd; Newport, Vt., 11th; Salem, West Va., 2nd; Grand Haven, 10th; Malone, 10th; Newport, 12th; Eastport, Me., 19th. *Sand Hill Cranes* seen at Independence, Iowa, 7th; Holton, Kan., 3rd; Emerson, Neb., 3rd. *Swallows* seen at Independence, Iowa, 7th; Standish, Me., 29th; Fall River, Miss., 8th; Litchfield, Mich., 21st; Hudson, Mich., 12th; Contoocookville, N. H., 12th; Wappinger's Fall, N. Y., 28th; Weldon, N. C., 29th; Carthagena, O., 29th; Margaretta, O., 27th; Jacksonsburg, O., 13th; Ringgold, O., 16th; West Charlotte, Vt., 12th; Prospect Hill, Va., 12th; Embarrass, Wis., 30th; Morgantown, West Va., 14th. *Sparrows* seen at Contoocookville, N. H., 12th; Jacksonsburg, O., 10th; Ringgold, O., 12th; Woodstock, Vt., 6th; West Charlotte, Vt., 3rd; Embarrass, Wis., 11th. *Thrush* seen at Baxter Springs, Kan., 6th; Litchfield, Mich., 15th; Urbana, O., 18th; Little Mountain, O., 11th; Woodstock, Vt., 23rd. *Whippoorwills* seen at Monticello, Ark., 6th; Laconia, Ind., 14th; Fort Madison, Iowa, 22nd; Nora Spring,